

Transatlantic Telephony—Service and Operating Features

By K. W. WATERSON

SYNOPSIS: This paper describes some of the differences in operating practice on the two sides of the Atlantic and plans which were worked out for taking account of them in the handling of commercial transoceanic calls. Difference in the language is also another problem which has required solution. Data are included giving an idea as to the extent to which the transatlantic connection was used during its first year, there having been established during this time a total of something over 2,300 connections.

THE introduction of telephone communication between Great Britain and the United States required the fitting together of the practices of two telephone organizations. The development of usage between subscribers in the two countries involves questions of different telephone habits and experience. It may help to define the problem of setting up a service of this kind if at the start I mention one or two of the more important characteristics of long distance service in the two countries which illustrate outstanding points of difference.

In Great Britain, only number service is available, that is, a service under which the telephone administration undertakes merely to obtain a connection with a specified telephone and on which the message toll charge is assessed in all cases where an answer is obtained from the telephone called whether or not the person desired is there. In the United States, this same number service is available at about the same initial rates as in England. In addition, we have a so-called person-to-person service on which, for a charge approximately 25 per cent above that for number service at the longer hauls, we undertake to obtain connection with a particular person who is specified in the order for service. In case of inability to reach the particular person desired, the full message charge is not assessed, but a so-called report charge is made, which is about 25 per cent of the station charge, tapering off in percentage to a maximum charge of one dollar. This difference in the class of service available in the two countries is a matter of importance because of the fact that our experience here in America shows that on the longer hauls and at the higher rates about 85 per cent of the calls are on a person basis, whereas at short hauls the large majority of calls are for a number only.

In both countries the toll rates provide for an initial talking period of 3 minutes. In Great Britain, additional use of the line is charged

for on the basis of 3-minute units and for each the charge is the same as the initial rate. In the United States, additional use is charged for on a one-minute basis—each minute's charge being about one-third the initial—a finer measure of actual use and one which, particularly at the higher rates, makes long distance telephoning considerably less expensive.

In the United States, the general practice is to allow subscribers to talk as long as they wish except on rare occasions due to emergencies such as storm breaks. In Great Britain, subscribers are notified at the end of 3 minutes and are limited to a maximum use of 6 minutes if other calls are waiting. This difference in the allowable length of long distance telephone conversations has developed out of basic differences in toll service policy as regards the provision of plant and the resultant speed of service. In the United States, we plan to give a very rapid service and we provide toll line plant to meet these needs. This policy seems to best meet the needs and desires of American users and to have been a large factor in the rapid development of our toll business. As a result, practically all toll and long distance calls are placed at the time when the connection is wanted and subscribers are often impatient if their calls are not completed immediately. In Great Britain, the plan has been to maintain as high efficiency as practicable in toll line plant and this naturally results in a somewhat slower long distance service. British subscribers are accustomed to longer delays than ours in obtaining connections. There is considerable advance booking. Under this condition, the limitation of the talking period, which I have already mentioned, is a practicable means of making the service available to as many users as possible and also of avoiding possible cases of unfair use of the lines by certain individuals to the exclusion of others. This difference in practice regarding the allowable length of conversation is a matter of particular moment in connection with a service like the transatlantic service for the reason that our experience has shown a definite tendency for users to talk for longer periods on the long haul, higher rate business. This is probably indicative of the greater importance or different nature of this class of telephone communication. Whatever the reason, calls at 250 miles average under 5 minutes, at 500 miles— $5\frac{1}{2}$ minutes, at 1,000 miles—6 minutes, and transcontinental calls— $6\frac{1}{2}$ minutes.

In Great Britain, distances are relatively short. London-Glasgow, for example, represents one of the important longer haul routes, and the air-line distance is about 350 miles. On international calls, London to Berlin is one of the longer hauls at which service is available

and this is under 600 miles. In Great Britain, there is relatively small development of telephone usage at these distances. In the United States, on the other hand, we have transcontinental service over some 3,000 miles with considerable business at this and other long distances. Our connection with the Cuban Telephone Company has also given us experience with very long haul service. So in the matter of special long distance problems and in the development of long distance telephone usage, the experience has been largely on this side of the water.

The service arrangements for this transatlantic undertaking were made through discussions carried on in London by representatives of our organization and officials of the British Post Office. While there were a good many problems to be worked out, there was the usual result, when both parties desire to cooperate and to discover the best solution, that an agreement was soon reached. It was decided that the service needs of transatlantic telephony would best be met by a single class of service with one rate covering either number or particular person usage. Experience in the Bell System had indicated that on long haul business of this nature, practically all calls would be for a designated person and this has been borne out in the transatlantic usage. The rate between Great Britain and twelve states in the northeastern part of our country was fixed at \$75 for 3 minutes, with an additional minute charge of \$25. A report charge, of which I have already spoken, was fixed at \$10 for use in certain cases where particular persons called cannot be reached.¹ The British Post Office preferred to apply the same rate to England, Wales and Scotland. Because of its wide expanse and expensive land line plant, the United States was divided into five zones for fixing additional land line charges over and above the New York terminal rate. These rate zone lines follow state lines. The zone rates go up in \$3 steps as we draw away from New York. Zone rates follow reasonably well the land line charges for service from New York. This zoning plan was adopted to simplify the means of quoting and computing the transatlantic rates abroad as compared with superimposing the more finely measured land line rates on the New York terminal charge.

For communications extending beyond the initial 3-minute period, the plan of charging on a single-minute basis was adopted, as it seemed the most equitable, particularly in view of the distances and charges involved.

¹"Reduced rates for transatlantic service became effective March 4th superseding those mentioned in this paper. To illustrate the extent of the reductions, a three minute call from New York to London which was initially \$75, is now \$45."

In setting up service and operating arrangements, it was necessary to give consideration to different conditions which would exist dependent upon the volume of business to be handled over the transatlantic channel. We had to consider operating practices which could be used satisfactorily either under conditions of high load and possibly delayed service or of light load and fast service. As a means of insuring service to as many users as possible in periods of heavy business, agreement was reached that there should be a 12-minute limit on individual usage in case other calls were awaiting assignment to the radio channel. So far, there has been no occasion to enforce this limitation. The limitation of 12 minutes was adopted instead of the usual 6-minute limitation common in British telephone practice for the reason that due to the relatively long talk periods on business of this kind, the 6-minute limitation would have resulted in interfering with too large a proportion of these communications.

One problem of interest involved in the transatlantic service was that of fixing rates which allowed of satisfactory expression either in terms of English pounds and shillings or in American dollars. For this purpose, 4 shillings was considered the equivalent of an American dollar. The rate from London to New York, for example, is £ 15 for 3 minutes and £ 5 for each additional minute. Our zone rate steps of \$3 for the initial period and \$1 for each additional minute were so set in order to allow of even dollar and even shilling quotations for the zone charges. The rate from Cleveland, for example, which is in our second zone, to London is \$78 for 3 minutes and \$26 for each additional minute. The same rate quoted from London is £ 15: 12 s. for 3 minutes and £ 5: 4 s. for each additional minute. Rate treatment of this kind was thought desirable, not only to allow of easy expression of rates in either English or American money, but also to avoid odd cents in our service charges.

Another problem had to do with the fixing of the hours of service so that the service would be most valuable and usable with due regard to the five hours difference in time between New York and London. At the time the service was opened, limitations on the use of the Rugby sending station for telephone transmission made it possible to keep the channel open only $4\frac{1}{2}$ hours during the day. The hours from 8:30 A.M. to 1:00 P.M., New York time, which correspond with 1:30 to 6 o'clock, London time, were adopted as allowing the maximum overlapping of the London and New York business day. Later, it became possible to extend the hours of operation so that now the service is available $10\frac{1}{2}$ hours—7:30 A.M. to 6 P.M., New York time, which is 12:30 to 11 P.M., London time. The fact that

both London and New York are on a daylight saving schedule in the summer months has required some shifting of the hours of service as these time rearrangements are effected on the two sides of the water.

The operating arrangements set up for the handling of this business provide traffic control operation at the New York and London long distance offices. These offices have direct access to the radio channel via the radio stations at Rocky Point and Houlton and at Rugby and Cupar where technical operators have the transatlantic channel under constant supervision and control. The New York and London long distance offices have special equipment arrangements necessary for connecting the radio channel and the land lines. On calls terminal at New York or London, the operation is similar to that on other terminal calls. On calls involving points beyond New York and London, the New York and London operators assume control, holding the land lines in readiness for prompt connection to the transatlantic channel, supervising the connection and fixing the amount of chargeable time, special measures being provided to protect the user from overcharges that might result from conversations being longer than otherwise necessary because of static and other atmospheric disturbances. The operating method is set up to require a minimum of time on the transatlantic channel for passing calls back and forth and preparing connections.

The personnel necessary to operate the transatlantic circuit is probably not generally appreciated. While two operators in London and two in New York can readily handle the calls themselves, there are six stations, three in each country, for operating and controlling the radio channel and from 35 to 40 men are needed for this work. This force could, of course, handle much more business than is now offered.

Just as the experience with special long distance operating problems and with the development of long distance usage had been largely on this side of the water, so in the matter of international telephone arrangements the experience had been largely with the British Post Office. We have had connection with Canada for many years, but in none of our interchange of business with Canadian companies have we encountered the problems incident to European international communication. The British Post Office, on the other hand, has communication with many countries on the continent and has played its part in the various European conventions and conferences looking to the betterment of international telephone agreements and communication in Europe. So their experience was particularly helpful in shaping up the contract arrangements. In general, the contract

between the British Post Office and the American Telephone and Telegraph Company covers such matters as responsibilities of the two administrations, classes of service, rates, broader operating provisions and settlement matters.

Turning now to the question of the results which are being obtained in this transatlantic service. During the first year, something over 2,300 connections were established. This is an average of about 7 a day, if we include Saturdays, Sundays and holidays, on which days as a general rule the flow of telephone traffic is relatively low. Usage is not very different east and west, something like 55 per cent of the business having originated on this side. Some business from the other side is, of course, from traveling Americans. After the first two months, January and February, when the business amounted to about 250 messages a month and was affected largely by formal openings and curiosity calls, the traffic fell off, and during the summer it was not more than half as great as it had been in the first two months. This may have been due partly to falling off in business activities and possibly also partly to the fact that more atmospheric difficulties are experienced during the summer and the service is then somewhat less dependable. As a matter of fact, there was less atmospheric difficulty than we had anticipated. Starting with September, the business has shown a steady increase. On Christmas Day there were 44 messages.

About half of the transatlantic calls are between New York and London. Over 70 per cent of them originate or terminate in New York City and the remaining calls involve points scattered over the rest of the country. Considering the type of usage of this transatlantic service, nearly half of the calls appear to be of a social nature. As to calls for business purposes, banks and brokerage concerns account for the greatest use so far.

In general, the quality of speech transmission has been more satisfactory than the preliminary tests indicated it would be possible to maintain throughout the year. The radio link is, of course, under careful observation throughout the service period and is not assigned for commercial use unless it appears that reasonably good communication will be obtained. Except for two summer months when atmospheric conditions made telephone communication impossible on an average of about 2 hours a day, the lost time due to static and other such troubles in the radio channel has been relatively small.

Except for brief periods on individual days, the traffic volume has not been sufficiently high to result in any problem in providing a fairly prompt service. At times, and particularly during the summer

months, individual calls have been delayed due to the fact that at the time they were offered, atmospheric conditions made it impossible to use the transatlantic channel. As the business develops, it will doubtless be necessary to adopt special measures for evening the flow of business throughout the period that the transatlantic channel is open for service. At such time as traffic develops to a point where some artificial leveling of the load is required, we would expect this service to involve advance bookings and longer delays than we are accustomed to here in the United States in our internal services. Pending the availability of other transatlantic channels through the use of short wave lengths or otherwise, I do not believe that this type of service would necessarily be seriously objectionable or deterrent to business development. As a matter of fact, a good many calls are now filed in advance.

Differences in the English language as spoken in London and New York became evident as soon as our New York operators were placed in communication with the operators in London. Each group expressed some concern as to what the other was doing to their language. I believe the London operators were inclined to think the broken English spoken by the telephone operators in Holland was sometimes easier to understand than New York City English.

The self-confidence of Americans evidenced itself in the considerable number of calls filed for the nobility, cabinet ministers and other men in the public eye. The fact that most of these calls were accepted by the persons called, indicated their willingness to play the game. Other evidences of this same confident attitude were the suggestions from individuals that they be given a free call so that we could capitalize on the publicity that they would put into their advertising. Others advised us after using the service that, for a consideration, they would allow their names to be used in our publicity material.

I have spoken of some of the operating problems in setting up the transatlantic service and of our experience in handling this service since its inauguration about a year ago. The operating and service arrangements have worked out satisfactorily. The service as a whole has been considerably better than we had anticipated. The volume of business is small but the business now being handled is in line with our general experience in the development of long distance usage. In a situation of this kind, full consideration should be given to the fact that, generally speaking, potential traffic volumes decrease with distance. Telephone service like the transatlantic is a new means of communication. It will not only take time for potential users to become convinced that satisfactory communication can be carried on

by telephone but time is required before they will break away from dependence on other means of communication such as the cables and mails with which they have had long experience and which may have appeared to meet their needs.

The development of our transcontinental business is of interest as this route may be considered as close a parallel as we can find to the transatlantic situation. For several years after the opening of the transcontinental service, the business was small but it has since greatly increased.

The transatlantic channel is a radio channel and this suggests a possible lack of privacy such as is obtained in ordinary telephone communication. Actually, the chances for conversations being picked up by persons to whom they would be of interest or value are rather remote, but this possibility has doubtless had some deterrent effect on the development of business. It is expected that these deterrent factors will be removed in the near future through the introduction of new equipment arrangements which will assure a high degree of privacy on these overseas conversations.

Possibilities for growth must be present in a communication system at the terminals of which we have New York and London, the largest business centers in the world, both English-speaking. On this side, the service has already been extended beyond the United States to Canada and Cuba, and will be extended to Mexico. On the other side the service has recently been extended beyond England, Wales and Scotland to important cities in Belgium, Holland, Germany and Sweden. Further extensions are under consideration to other important continental cities between which and this country there is undoubtedly potential business. As the service is extended beyond Great Britain, a language problem appears. So far about 5 per cent of the conversations are not in English. For the time being, we are relying on the London operators for smoothing out language difficulties in establishing connections and the problem is, of course, not a new one to them. We are planning, however, to set up an operating force here in New York which can communicate in their own language with users who are not speaking in English.

Not only from a technical viewpoint but in other respects we are gratified at the results of the first year's operation of the transatlantic service and we look forward with confidence that this service will be, not only the quickest, but an essential factor in communication between the old world and the new.